

What is claimed is:

1. An inductive write element for use in a magnetic data recording system,
2 comprising:
 3. a first pole constructed of a magnetic material and having a first end and
4 an opposite second end;
 5. a second pole constructed of a magnetic material and having a first end
6 and an opposite second end, said second end of said second pole being
7 connected with said second end of said first pole to define a back-gap
8 region and said first end of said second pole being separated from said
9 first end of said first pole by a write gap;
 10. an electrically conductive coil having a plurality of winds a portion of
11 which pass between said first and second poles;
 12. an electrically insulating material disposed between said coil and said first
13 and second poles and electrically isolating said coil from said first and
14 second poles; and
 15. a layer of laminated high magnetic moment (high B_{sat}) material formed on
16 said second pole adjacent said insulating material and extending into said
17 write gap.
1. 2. An inductive write element as recited in claim 1 further comprising a pedestal
2 constructed of a high magnetic moment material formed on said first pole in
3 said pole tip region.
1. 2. 3. An inductive write element as recited in claims 1 or 2 wherein said high
2 magnetic moment material includes FeXN, X being selected from the group
3 consisting of Rh, Ta, Al, Ti and Zr.

1 4. An inductive write element as recited in claims 1 or 2 wherein said high
2 magnetic moment material has a thickness of one to five times the thickness
3 of said write gap.

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1 5. An inductive write element as recited in claim 3 wherein said high magnetic
2 moment material includes lamination layers of a non-magnetic, dielectric
3 material.

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1 6. An inductive write element as recited in claim 3 wherein said high magnetic
2 moment material further includes lamination layers of cobalt based
3 amorphous ferromagnetic alloy.

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1 7. An inductive write element as recited in claim 6 wherein said cobalt based
2 amorphous ferromagnetic alloy is Co₉₀Zr₉Cr.

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1 8. An inductive write element as recited in claims 1 or 2 wherein said high
2 magnetic moment material of said second pole has a thickness of roughly
3 0.5um and the remainder of said second pole has a thickness of roughly 2um.

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1 9. An inductive write element as recited in claims 1 or 2 wherein said second
2 pole, exclusive of said high magnetic moment layer is constructed of a
3 ferromagnetic material suitable for plating.

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1 10. An inductive write element for use in a magnetic data recording system,
2 comprising:

3 a. a first pole constructed of a magnetic material and having a first end and
4 an opposite second end;

5 b. a second pole constructed of a magnetic material and having a first end
6 and an opposite second end, said second end of said second pole being
7 connected with said second end of said first pole to define a back-gap
8 region and said first end of said second pole being separated from said
9 first end of said first pole by a write gap;
10 c. an electrically conductive coil having a plurality of windings, a portion of
11 which pass between said first and second poles;
12 d. an electrically insulating material disposed between said coil and said first
13 and second poles and electrically isolating said coil from said first and
14 second poles; and
15 e. a pedestal formed on said first pole at said first end, and constructed of a
16 laminated high magnetic moment material including laminated FeXN,
17 wherein X is selected from the group of materials consisting of Rh, Ta, Al,
18 Ti and Zr.

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1 11. An inductive write element as recited in claim 10 wherein said pedestal
2 includes lamination layers of a cobalt based amorphous ferromagnetic
3 material.

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1 12. An inductive write element as recited in claim 10 wherein said pedestal
2 includes a layer of Co₉₀Zr₉Cr.

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1 13. A method for constructing an inductive write element for use in a magnetic
2 data recording system, comprising the steps of:
3 a. forming a first magnetic pole constructed of a magnetic material;
4 b. depositing a first insulation layer;
5 c. depositing a layer of dielectric write gap material;

6 d. forming an electrically conductive coil;

7 e. depositing a second insulation layer;

8 f. curing said second insulation layer;

9 g. sputter depositing a thin layer of high magnetic moment material;

10 h. patterning a second pole;

11 i. plating a magnetic material in the pattern of said second pole; and

12 j. performing a first ion milling process, to remove at least a portion of the

13 sputtered, high magnetic moment material not covered by the plated

14 second pole.

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1 14. A method for constructing an inductive write element as recited in claim 13

2 further comprising the steps of:

3 a. sputter depositing a layer of a high magnetic moment material onto said

4 first pole;

5 b. masking the high magnetic moment material sputter deposited onto first

6 pole in a pattern corresponding to a pedestal to be formed on an end of the

7 first pole; and

8 c. etching to remove said sputter deposited high magnetic moment material

9 not covered by said mask to form said pedestal.

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1 15. A method for constructing an inductive write element as recited in claim 14,

2 further including the steps of:

3 a. depositing a mask on said plated magnetic material forming said second

4 pole, said mask being disposed at an end of said second pole;

5 b. performing a second ion milling process to remove a portion of said

6 second pole at said end;

- c. performing a reactive ion etching process to remove a portion of said dielectric write gap material layer; and
- d. performing a third ion milling process to remove a material from said pedestal.

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16. A method for constructing an inductive write element as recited in claim 14 further comprising the step of polishing said first insulation layer using a chemical mechanical polishing process.

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17. A method for constructing an inductive write element as recited in claim 13 wherein said high magnetic moment material is sputter deposited FeXN, X being selected from the group of materials consisting of Rh, Ta, Al, Ti, and Zr.

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18. A method for constructing an inductive write element as recited in claim 17 wherein said high magnetic moment material further includes lamination layers of a cobalt based ferromagnetic amorphous alloy.

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19. A method for constructing an inductive write element as recited in claim 18 wherein said lamination layers are Co₉₀Zr₉Cr.

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20. An inductive write element constructed by the method of claim 13 or 14.